EXECUTIVE SUMMARY

The Central City study area is located at the confluence of the Clear Fork and West Fork of the Trinity River in the heart of Fort Worth in Tarrant County, Texas (Figures 1 - 1 and 1 - 2). The Central City study area is bounded generally by the Fort Worth Stockyards to the North, University Drive to the West, I-30 to the South, and Sylvania Avenue to the East (Figure 1 - 3).

Purpose

The Central City Draft Environmental Impact Statement (DEIS) documents existing conditions in the study area, identifies problems and opportunities in the study area, describes the array of alternative solutions designed to address the problems and opportunities, and compares those alternatives to the No Action Alternative. A set of recommendations for Federal Action is made. The EIS also identifies and addresses, to the extent possible, the actions of others that may be connected to or stem from a project within the Central City Study Area. Within the framework of the National Environmental Policy Act (NEPA), this document is tiered from the Upper Trinity River Programmatic Environmental Impact Statement dated June 2000.

The purpose of this study is to evaluate potential modifications to the existing system of levees and channels that would enhance existing levels of flood protection, restore components of the natural riverine system that were sacrificed in the construction of the existing flood control system, facilitate urban revitalization, and provide major quality-of-life enhancements (ecosystem improvements and recreation) for citizens of the region.

Current Authority

Current USACE investigations into water resources problems and opportunities in the Upper Trinity River Basin were authorized by the United States Senate Committee on Environment and Public Works Resolution, dated 22 April 1988. On 29 August 1990, the USACE and the North Central Texas Council of Governments (NCTCOG) executed a Feasibility Study Cost Sharing agreement to conduct such investigations jointly. This agreement provides the operating framework for a number of site-specific investigations throughout the region, of which the Central City project investigation is one. Well into the study process for Central City, the study authority was modified by Public Law 108-447, dated 8 December 2004, which authorized Federal participation for construction as follows:

- "Sec. 116. The project for flood control and other purposes on the Trinity River and Tributaries, Texas, authorized by the River and Harbor Act of 1965 (Public Law 89-298), as modified, is further modified (Public Law 108-447, Section 116) to authorize the Secretary to undertake the Central City River Project, as generally described in the Trinity River Vision Master Plan, dated April 2003, as amended, at a total cost not to exceed $220,000,000, at a Federal cost of

$110,000,000, and a non-Federal cost of $110,000,000, if the Secretary determines the work is technically sound and environmentally acceptable. The cost of the work undertaken by the non-Federal interests before the date of execution of a project cooperation agreement shall be credited against the non-Federal share of the project costs if the Secretary determines that the work is integral to the project."

Previous Authorities

The Fort Worth Floodway, as a Federal project, was authorized by Section 2 of Public Law No. 14, 79th Congress, 2nd Session approved 2 March 1945. The project was initiated in 1950 and completed in 1957. In 1960, the Flood Control Act provided for an extension upstream of the completed Fort Worth Floodway on the West Fork of the Trinity River. The construction of this extension project was initiated in March 1965 and completed in June 1971. The Flood Control Act dated October 23, 1962 authorized an extension of the levee system along the Clear Fork of the Trinity River between the existing Fort Worth Floodway and State Highway (SH) 183. Construction of this extension began in January 1966 and was completed in September 1971.

Evolution of the Study

The Fort Worth Floodway was constructed in downtown Fort Worth in 1957 by the Corps and Tarrant County Water Control and Improvement District #1 (Now the Tarrant Regional Water District). The original project included widening and straightening the Clear Fork channel from Lancaster Street Bridge to the confluence with the West Fork, and continued along the West Fork to Riverside Drive. Leveed flood protection was also provided along the West Fork upstream of the confluence. The resulting floodway channel was 9.9 miles long, with levees of varying height, but an average of approximately 13 feet above ground elevation. The floodway has been subsequently modified with extension of the Clear Fork levee towards Benbrook Lake and extension of the West Fork Levee downstream of Lake Worth. Several other modifications including the construction of a low 5200-foot long levee along the north overbank in the vicinity of Riverside Drive occurred during the 1980s.

Since the mid-1980s there have been a series of Trinity River planning and floodplain management initiatives, all of which have lead in some form or another to the current planning effort. The Trinity River and Tributaries Environmental Impact Statement (TREIS) identified inadequacies with the regional floodplain management policies of the time, and the study concluded that reduced levels of flood protection within the region's major urban areas had already occurred. Further, the document indicated that without a common set of criteria for floodplain development, the level of flood protection would continue to degrade. The TREIS Record of Decision (ROD) was signed in 1988 and established hydrologic and hydraulic criteria for actions that require USACE permits under Section 10 of the Clean Water Act (CWA) and/or Section 404 of the CWA. Because the ROD left

the possibility for development of floodplains outside of the USACE jurisdiction which would lead to increases in flood frequency and extent, a Corridor Development Certificate (CDC) program was initiated. As a joint effort of the North Central Texas Council of Governments (NCTCOG), the USACE, Fort Worth District, and member NCTCOG cities and counties, the CDC establishes a set of permit criteria and procedures for development of the Trinity River Corridor similar to those developed in the TREIS.

Measures implemented through the TREIS and CDC stabilized existing levels of flood protection. However, the degradation of flood protection, which occurred between the 1950s when the floodway was built and the 1980s when more rigorous floodplain management measures were implemented, was not restored. During the 1990s, a series of studies were conducted by USACE in cooperation with other entities to investigate the opportunities to restore the original level of flood protection. In 1999, Streams and Valleys, Inc. developed a plan through intense public dialog which, while recognizing the flood protection function of the floodway, challenged traditional concepts of how the protection should be provided. This plan outlined recreation-oriented improvements to an eight mile loop of the river around downtown Fort Worth. In 2001, TRWD in cooperation with Streams and Valleys, Inc., the City of Fort Worth and Tarrant County, developed the "Trinity River Vision Master Plan". This plan was developed with an emphasis on community-based input and integrated the two purposes of recreation and flood protection by emphasizing quality-of-life enhancements and environmental integrity for the Trinity River, while ensuring the watercourse could manage stormwater runoff, water conservation, and flood control in a manner that protects public safety and property. One community goal clearly communicated through the public involvement process was a desire to "connect" to the water of the Trinity River, to which the current levee system is a barrier. The resolution conceived during urban planning workshops was a bypass channel and flood isolation gates that could eventually allow removal of portions of the existing levee system.

In May 2004, the USACE and Tarrant Regional Water District (TRWD) modified the Project Management Plan for the West Fork/Clear Fork Interim Feasibility Study to focus exclusively on problems and opportunities in the Central City river reach.

Existing Conditions

Flood Protection

The existing floodway was designed and constructed to provide a level of protection equivalent to the Standard Project Flood (SPF) with four feet of freeboard on the levees. Analyses from the Clear Fork/West Fork feasibility study indicate that 86 percent of the linear extent of the levee system is currently less than the current design level of protection. A minimum levee freeboard of four feet was considered necessary in order to allow for possible deviation from the adopted design discharge as a result of the rapid rise in flood discharge for this type of watershed, as well as, for allowing for wave action, outer bend ride-up, unclear vegetation, levee settlement, floating debris buildup, duration of high water against the levees, upper river improvements, and future urbanization. The original SPF Fort Worth Floodway design discharges are 95,000 cfs on the West Fork below the

confluence with the Clear Fork, 50,000 cfs on the West Fork above the Clear Fork, and 75,000 cfs on the Clear Fork. Hydrologic analysis of the river system for this study indicates that the SPF design discharge on the West Fork below the confluence with the West Fork is 118,900 cfs, 59800 cfs on the West Fork above the Clear Fork, and 78300 cfs on the Clear Fork. The SPF discharges on the West Fork below the Clear Fork increase to 127,300 at the end of the Fort Worth Floodway at Riverside Drive. These discharges are "future conditions" discharges and were used as the basis for design of this project. This is consistent with the CDC process use of future conditions discharges as design discharges. Expected annual flood damages for existing conditions are approximately $334.3 thousand (July 2003 prices).

The Fort Worth Floodway interior drainage system consists of sump areas, served by 30 drainage structures, which collect and store local runoff behind the levees to discharge via gravity flow into the West Fork and the Clear Fork once the river levels recede. The original design capacity of the sump areas is the 50-year flood. Recent studies have indicated that this level of protection has diminished for several sumps. Total flood damages from the 50-year event for sumps 26 and 14/15W were estimated to be $5,122,300, and $13,916,300 for the 100-year flood event.

Ecosystem

The natural resources within the study area have been modified by urban development and past flood damage reduction activities. The entire study reach has been channelized and levees have been constructed along the area to protect large areas of former floodplain. The terrestrial habitat between the levees is maintained in a modified state which allows only grasses, predominantly non-native species, to grow and survive. The aquatic habitat is also a modified community due to the channelization and construction of numerous low-water dams, resulting in a system that essentially functions more as a lentic (lake) environment than a true lotic (river) system. The exceptions to this condition can be found on two tributaries in the study area, Marine Creek and LeBow Creek.

Terrestrial habitats found within the study area include riparian and upland forest, wetlands, and modified grassland communities. Historically, riparian woodlands were the dominant community occupying the near-water lands; today they occupy approximately 6 percent of their former range within the study area. These remaining riparian communities are predominantly occupied by in-mature, early successional trees. Coupled with the presence of non-native invaders such as Chinaberry and Ligustrum, which suppress the reproduction and recruitment of new canopy trees, the ability for the remaining riparian woodlands to provide the necessary components of quality habitat is severely diminished. Wetlands within the study area are generally small, ephemeral, and poor quality. Most of the grasslands within the study area are non-native mown urban type grasses, and the largest portion of these is located within the existing floodway. The ability of the grasslands to provide quality habitat is severely limited as they do not provide the height, structure, diversity, or seed production that native, unmaintained grassland would contain. Upland woodlands are scattered throughout the study area, and several locations provide high quality upland habitat.

Based upon the result of the habitat evaluations performed by U.S. Fish and Wildlife, there are approximately 323 acres of riparian woodlands which provide approximately 189 habitat units; 523 acres of upland woodlands which provide approximately 305 habitat units; 14 acres of wetlands

which provide approximately 5 habitat units; 2,363 acres of modified grasslands providing 956 habitat units.

Much of the river channel within the study area is characterized as pool habitat, which is created by a series of low-water dams. The historic pool-riffle-run sequences of a river system are lacking from much of the main channel. The confluence of Marine and LeBow Creeks with the West Fork Trinity River occur within the study area, and the aquatic habitats within these creeks and a downstream reach of the West Fork include these highly productive aquatic habitat sequences. Because these areas include pool-riffle-run sequences, and are more natural with respect to their sinuosity and thus have more balanced sediment transport functions, they also contain more appropriate substrate materials for successful aquatic life reproduction.

Habitat suitability indices were calculated by U.S. Fish and Wildlife based upon an Index of Biotic Integrity (IBI) value. The Clear Fork Trinity contains 39.54 surface acres of water which provides approximately 33.07 habitat units, while the West Fork Trinity contains 168.87 surface acres of water and provides 149.05 habitat units. Approximately 1875 linear feet of Marine Creek and 2700 linear feet of LeBow Creek were considered by USFWS to contain exceptional or high quality habitat. The lower portion of Marine Creek, beginning at its confluence with the Trinity River provides the best habitat with a calculated HSI value of 0.93, and the upper portion of the creek provides some of the lowest quality aquatic habitat within the study area with a HSI of 0.75. LeBow Creek upstream to Brennan Avenue was also associated with better overall habitat conditions with an average HSI of 0.87. The creek was found to be populated with species considered to be intolerant of conditions disruptive to quality habitat.

Water quality within the study area is primarily influenced by base flows from upstream Lake Benbrook and Lake Worth releases, urban runoff from upstream adjacent watershed areas, and the check dams at various locations along the watercourse. TCEQ has set water quality standards and designated the water use for two stream segments within the study area. According to TCEQ use designations, the immediate study area is designated for high aquatic life use, contact recreation use, general use, fish consumption use, and public water supply use (TNRCC 2000a). Existing water quality test results in project area tend to fully support these uses except fish consumption (due to presence of legacy pollutants in fish tissue) and contact recreation (due to insufficient bacteria testing).

Cultural Resources

A records search indicated two previously recorded cultural resources sites in the immediate vicinity of the study area. Both sites are deeply buried prehistoric sites consistent with other such sites discovered along the West Fork, its tributaries, and Lake Worth. Thirty properties were identified as having potential for listing on the National Register of Historic Properties (NRHP), and one property, the Paddock Viaduct is already listed on the NRHP and recognized as a Texas Civil Engineering Landmark and a Recorded Texas Historical Landmark.

Hazardous, Toxic, and Radioactive Waste

Results from a records review indicate that the majority of known major soil and groundwater contamination is in the North Main Street area. Within the study area, there are numerous sites (i.e. vehicle maintenance, dry cleaners, USTs, etc.) where environmental issues could typically occur. There are four sites within the North Main Street area where significant releases to the environment have occurred. Soil and groundwater data collected along the route of the proposed bypass channel associated with the Community Alternative indicate minimal subsurface contamination. Therefore, widespread subsurface contamination is not likely to be encountered throughout the project area. However, although below action levels, the presence of some contaminants may indicate the potential for nearby soil contamination in excess of regulatory levels. Based on these findings it appears that contamination from individual properties is likely to be restricted to private industrial properties.

Recreation

There are approximately 830 acres of recreational lands dispersed among 17 different facilities (golf courses, community parks, urban parks, neighborhood parks, and special use areas) located within the study area. Additionally, there are approximately 15 miles of existing trails. These recreational opportunities are some of the 10,555 acres of parkland available for public use within the City of Fort Worth. Currently, these existing facilities provide 19.5 acres of recreational lands per 1000 persons, which is short of the 21.25 acres per 1000 person goal established by the City in 1998. It is estimated that by 2023, based on current population trends, that the City of Fort Worth will need an additional 4,700 acres of parkland to meet the 21.25 acre per 1000 person standard.

Socio-economics

The existing socio-economic character was established for two contexts, the study area and the immediate project area. The study area is approximately 9,700 acres in size and provides a broader context for the socio-economic assessment. A subset of the 9,700 acres was assessed as the project area. The project area was thought to be the area most impacted by a bypass channel, a measure under consideration during the planning study, and ultimately identified as a part of the recommended plan.

The project area consists of an area whose population is predominantly Hispanic. Although there has been improvement between the 1990 and 2000 census, a larger percentage of residents in the project area have lower levels of income and educational attainment compared relative to Tarrant County as a whole. Unemployment for the project area is more than twice that of the County. The proportion of owner occupied housing within the project area is roughly 80 percent compared to that of the County. Additionally, the poverty rate is more than twice as high in the project area as it is in Tarrant County. Coinciding with the appearance of an area that may be considered economically depressed, land values for the project area compares similarly with other areas of the city such as Riverside and MLK. Comparing the land values with those of the downtown area, the contrast is enormous, especially in light of the proximity of the two areas.

Coordination and Public Involvement

A Notice of Public Scoping Meeting was mailed to all known interested parties on October 11, 2002 outlining the study authority, major projects being proposed by USACE within the study area, and the date and location of the public scoping meeting. USACE also issued a news release on October 24, 2002, announcing the scoping meeting and the opportunity for citizens to offer comments, suggestions or any other information that might benefit the USACE in preparing the Draft EIS. The scoping meeting was held on October 29, 2002 with approximately 50 individuals attended. A brief description of the overall study and schedule for the NEPA process was discussed and members of the public were allowed to present statements regarding their concerns on the feasibility study.

From April to June 2001, ten public meetings were held with neighborhood groups and land owners, including those neighborhood groups within close proximity to the project area, with subsequent rounds of public meetings occurring in January 2002 and between November 2002 and June 2004. In December 2004, the public exhibit of Trinity Uptown opened following the adoption of the TRV Master Plan by the TRWD Board, the Streams and Valleys Board, the City of Fort Worth and Tarrant County in 2003. Meetings including neighborhood groups close to the project area were conducted in the Rose Marine Theater in the heart of the traditionally Hispanic Northside of Fort Worth and in the Botanic Gardens. Comments from neighborhood groups reflect concerns about maintaining the historical integrity of their neighborhoods, accessibility to project amenities from neighborhoods such as Oakhurst and Riverside as well as those neighborhoods with limited amounts of park space. Additional comments were voiced with regard the availability of mass transit to relieve anticipated traffic congestion in the area, as well as, concern regarding the potential acquisition and relocation of businesses.

Additionally, during data collection for the socioeconomic assessment, a meeting was held with the president of the Hispanic Chamber of Commerce to help determine what impacts, both positive and negative, the Hispanic community may expect and how the Chamber may be used to disseminate information. Discussions included construction and bidding opportunities for Hispanic businesses and public outreach to the community through Spanish language television and radio.

Goals and Objectives

Based upon the existing condition analysis, four general categories of problems and opportunities were identified. The goals and objectives established for each category are:

Flood Protection

- Restore the design level of protection (SPF+4 feet) throughout the system
- Maintain or improve flood protection associated with interior drainage to the floodway system

Ecosystem Improvement

- Restore, improve, and diversify aquatic habitat associated with the Clear and West Forks of the Trinity River for native aquatic organisms
- Improve and increase quantity of emergent wetland habitat for migratory birds of ecological importance
- Establish continuity and connectivity within and between regionally and nationally significant ecosystems
- Protect and improve existing pockets of high quality bottomland hardwoods adjacent to the river system

Urban Revitalization

- Provide aesthetic and recreational focal points for the Central City
- Encourage a higher density of people living, working, playing, and learning in the Central City
- Orient mixed use development directed toward the river
- Create an interior water feature, or focal point
- Provide a higher normal water level
- Eliminate or modify levees where feasible, while maintaining the level of flood protection
- Create new and enhance existing linkages to neighborhoods and districts
- Enhance redevelopment potential of Central City lands

Recreation

- Provide extensive and direct public access to the river and waterfront
- Facilitate a water-based system of linkages between Downtown, Stockyards, and the Cultural District
- Provide recreational and open space amenities

- Provide a continuity of urban trails through Downtown consistent with the Trinity Trails system

- Create additional trail linkages with neighborhoods and cultural amenities

Alternatives Considered

In addition to the No Action, two action alternatives are presented in this Draft EIS. The two action alternatives share three common objectives, Flood Protection, Ecosystem Improvement, and Recreation. One additional objective was associated with providing Urban Revitalization opportunities; only one action alternative was formulated with this purpose in addition to the three common purposes. The action alternatives were developed under two parallel formulation strategies. Development of the Principles and Guidelines (P&G) Based Alternative followed the principles, standards, and procedures outlined in the Water Resources Council's "Economic and Environmental Principles and Guidelines for Water Related Land Resources Implementation Studies". The strategies presented in that document provide the basis for Corps planning activities. The Community Based Alternative was formulated with a broader community input based approach, which included extensive public participation with unconstrained development of goals and objectives. The result of these two different planning processes was the development of two very different plans for addressing the problems and opportunities of the study area.

Under the No Action Alternative, which is equivalent to the description of the future without-project condition, no measures would be taken to address the objectives and goals developed for flood protection, environmental improvement, urban revitalization, or recreation. The existing inefficiencies of the floodway would remain. The expected annual flood losses in the future without-project condition were estimated to be $500.1 thousand (July 2003 prices). This represents an almost 50% increase in the Total Expected Annual Damages over the existing condition. While environmental conditions between the levees of the floodway would remain the same, the environmental conditions in locations outside the floodway would essentially continue to degrade. With the No Action Alternative, land use in the immediate project area would remain at levels significantly less productive than those of surrounding portions of the study area. Finally, there is an existing shortfall in recreational facilities available for the current population of Fort Worth, and under the future without-project condition that shortfall would increase.

The P&G Based Alternative includes levee raises along portions of the existing channel to bring the system within the study area into compliance with CDC criteria, and return the flood protection levels to the original design criteria of SPF+4 foot. This alternative provides approximately $230,000 in expected annual flood damage reduction benefits. This alternative does not provide any improvements to the existing interior drainage problems. The ecosystem improvement component of the P&G Based Alternative would provide approximately 56 acres of riparian woodland development, and 65 acres of existing riparian corridor would be improved. These riparian woodland measures would increase riparian habitat outputs by 38.5 AAHUs over the No Action Alternative. Approximately 22 acres of new wetlands would be developed and approximately 3 acres would be improved, providing an additional 21.8 AAHUs over the future without-project condition. Two

historic meanders which were disconnected from the main channel would be reconnected to provide approximately 2.5 acres of scarce riverine habitat and add 2.2 AAHUs to the output of the aquatic community. The P&G Based Alternative would also include 1.5 acres of slope restoration involving shrub plantings to restore the new channel slopes of the restored meanders. Recreation features included in the P&G Alternative provide for approximately 7,800 linear feet of new multipurpose trail which would link the southern end of the study area to the Trinity Trail System. Other amenities would include four new trail heads, self-guided interpretive signage, mile marker signage, and six benches. Less than one mile of existing trail would need to be replaced due to disturbance to construct this alternative.

The Community Based Alternative would provide SPF+4 feet of protection through construction of a bypass channel extending just downstream of Fifth Street on the Clear Fork to just upstream of Northside Drive on the West Fork, approximately 8,400 feet in length and 300 – 400 feet wide between the top of the levees. Three isolation gates designed to restrict flood flows to the new bypass channel and to isolate the interior area from flood flows would be constructed. This alternative would provide the same magnitude of economic benefit for flood damage reduction as the P&G Based Alternative; however, the hydraulic efficiency of the bypass channel also improves the interior drainage problems which exist in the system. Damages associated with the 50-year event for sump 26 ($773,500) and the 100-year event ($4,846,900) would be eliminated. Twenty acres currently within sump 16W would be raised above the elevation of the 100-year event. University Drive between the West Fork and Jacksboro Highway and Henderson Street in the vicinity of White Settlement Road and the Fort Worth and Western Railroad would be raised out of the 100-year floodplain.

Additional urban design features which would enhance the urban revitalization potential of the area include a dam on the West Fork, approximately 1,100 feet downstream of Samuels Avenue, designed to create a normal water surface elevation of approximately 525 feet National Geodetic Vertical Datum (NGVD) and an interior water feature approximately 900 feet in length at the confluence area of the Clear Fork and West Fork Channels. The ecosystem improvement components of this plan are tied primarily to the areas proposed for valley storage mitigation, which would be required for implementation of this alternative. In addition to restoring 5 acres and 4.3 AAHUs of riverine habitat through the reconnection of two historic river meanders, the Community Based Alternative would improve the quality of the future wetland values by 12.5 AAHUs while providing approximately 6.2 additional acres. The quality and quantity of riparian woodlands would be increased by 42.1 AAHUs and an additional 85 acres over the without-project condition. There would also be an approximately 118 acres of additional surface water created by the Samuels Avenue Dam and interior water feature. Recreational features of the Community Based Alternative would enhance river accessibility by providing approximately 10 miles of waterfront trails, 2 new pedestrian bridges, and approximately 3.5 miles of contiguous boating loop. Three new vehicular bridges would be required to maintain existing traffic flows to and through the area. These bridges would provide access over the bypass channel for North Main Street, Henderson Street, and White Settlement Road and the Henderson Street and White Settlement Road bridges would improve safety due to grade separations with the FW&W Railroad.

Recommended Plan

After careful consideration of the impacts associated with the three presented alternatives, the Community Based Alternative is recommended for implementation, subject to additional feedback and comments received as a result of agency and public review.

The Community Based Alternative addresses all four project objectives, i.e. flood protection, ecosystem improvement, urban revitalization, and recreation. This alternative provides the design level of protection within the system, and improves the performance of the interior drainage components, reducing damages associated with the 100-year flood event for sumps 16W and 26. By following the valley storage mitigation outlined below, the proposal fully complies with the criteria established in the Corridor Development Certificate process, and, in fact, exceeds the criteria relative to mitigation of valley storage for the SPF volume. Additionally, the Community Based Alternative would cause no long-term adverse environmental impacts within the study area. Initial adverse impacts to the aquatic habitats of Marine and LeBow Creeks would be fully mitigated in accordance with the Mitigation Plan discussed below. Adverse impacts to cultural resources either buried or in the cultural landscape would be identified and appropriate mitigation completed. Business relocations required to support the Community Based Alternative may, initially, have an adverse impact on local employment. Most affected businesses are expected to relocate in proximity to the project, mitigating this effect. Long term economic growth and land use intensification would offset the employment effect many times over.

Hydraulic Mitigation

Construction of the bypass channel would require mitigation of valley storage to compensate for the increased efficiency of the bypass channel. Hydraulic analysis quantified the approximate volume of valley storage that would be lost as 5,250 acre-feet (8.47 million cubic yards) without mitigation. Of this, an estimated 2,850 acre-feet would be lost due to creation of the shorter bypass channel (versus existing river channel) and approximately 2,400 acre-feet of valley storage would be lost due to drawdown.

These valley storage losses would be mitigated by the following:

- Partial levee removal and excavation in the Riverbend site approximately three miles upstream of University Drive;
- Excavation of additional sites immediately downstream of Samuels Avenue Dam, and adjacent to Interstate Highway 35; and
- Modification of the University Drive roadway embankment, north of the bridge over the West Fork

In combination, these measures have been verified to fully mitigate for 100 percent of the valley storage inputs, in full compliance with CDC criteria and exceeding the criteria relative to mitigation of valley storage for the SPF volume.

Ecological Mitigation

Implementation of the Community Based Alternative would result in temporary losses to wetlands, riparian woodlands, and upland woodlands primarily in the hydraulic mitigation site(s). However, with construction of the hydraulic mitigation features mentioned previously and ecosystem improvement components of the alternative, the quality of all and quantity of some of these habitats would ultimately be improved through the period of analysis. This habitat has been assessed by U.S. Fish and Wildlife as being exceptional during some times of the year. Additionally, the Community Based Alternative would fill the lowermost 400 linear feet of LeBow Creek in order to prevent inundation to the upper reaches and associated effects to the 100-year water surface elevation.

USFWS is currently coordinating with the USACE and local sponsors to develop a plan to mitigate the impacts to Marine and Lebow Creeks. Mitigation measures under evaluation include diverting flows, varying by season up to 5 cubic feet per second, to the mid-reach of Lebow Creek. A gravity flow pipeline from the Samuels Avenue Dam impoundment would be possible to a point on the stream where the bottom elevation is approximately 525 NGVD feet, which appears to be near Brennan Avenue. In addition, investigation of the potential to add additional aquatic habitat area by modifying the channel bottom of Lebow Creek within the reach downstream of Brennan Avenue including the 1500 feet of downstream diversion of Lebow Creek. Other sites are also being investigated, including the potential to add additional instream aquatic habitat via structural modifications to Marine Creek above Main Street and to develop a riparian corridor with buffer and significant aquatic-terrestrial habitat interface along an unnamed tributary to the West Fork that flows through Harmon Field Park east of I-35. This unnamed stream apparently originates from the east Fort Worth Bluff area and has its confluence near the downstream end of the study area. The USACE and the sponsor have committed to completion of a compensatory mitigation plan for the Marine Creek and LeBow Creek stream habitat impacts prior to the completion of the NEPA process. During detailed planning in preparation for construction, additional studies would be conducted to incorporate stream geomorphology considerations into the design of any aquatic features that would incorporate stream habitat or flow alterations to reduce undesirable erosion, siltation and velocities that would hinder aquatic habitat sustainability.

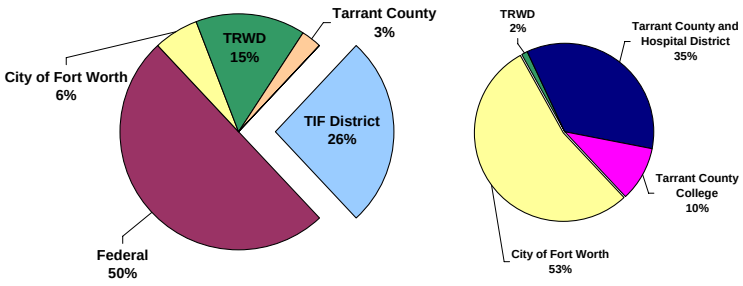
Implementation and Costs of Recommended Plan

Total project costs are estimated at $435 million; a preliminary cost schedule for the Community Based Alternative is shown in the following table. All costs shown are in January 2005 dollars. Annual operation and maintenance costs are estimated to be $256,443.

Table ES-1. Project First Costs (2005 Dollars)

Item	Estimate ($)
Property and Relocation	95,000,000
Valley Storage Mitigation	17,000,000
Samuels Avenue Dam	35,600,000
Ecosystem Improvements	5,800,000
Roads and Bridges	64,000,000
Bypass Channel	39,600,000
Stormwater Pumping Station	4,900,000
Water Feature	13,200,000
Flood Control and Diversion Structures	35,300,000
Building Demolition and Utilities	33,100,000
HTRW	25,100,000
Design Survey, Testing, Legal Fees	8,100,000
Planning, Engineering, Design and Permitting	24,100,000
Program Management	17,500,000
Construction Management	16,700,000
Total	**435,000,000**

Tarrant Regional Water District will serve as the primary non-Federal sponsor; however a variety of sources will provide local, state, and federal funds. The anticipated contribution of each participating entity is shown below.



Funding Distribution **TIF Distribution**

Additional Information

Copies of this Environmental Impact Statement are primarily provided in electronic format through the internet or compact disks in .pdf format. The supporting appendices of this Environmental Impact

Statement have also been placed on compact disks in a .pdf format. The electronic files on compact disk can be accessed using Adobe Acrobat. Hard copies of either the report or appendices are available upon request.

Contact Information

Comments or questions regarding the Upper Trinity River, Central City, Draft Environmental Impact Statement or the Recommended Plan can be addressed to Dr. Rebecca Griffith, Project Manager, CESWF-PER-P, U.S. Army Corps of Engineers, Fort Worth District, P.O. Box 17300, Fort Worth, Texas 76102-0300, or call 817-886-1820, or use electronic mail at rebecca.s.griffith@swf02.usace.army.mil.